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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Paper No. 0104

Application Number: 09/661,971
Filing Date: September 14, 2000
Appellant(s): BHASKAR ET AL.

John M. Kilcoyne
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 12/15/03

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) Status of Claims

The statement of the status of the claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Invention

The summary of invention contained in the brief is deficient because the claims are for an apparatus and a method for centrifuging a liquid (e.g., blood or plasma) while maintaining the temperature of the liquid using radiation from a halogen lamp, wherein the radiation from the source is filtered using a UV filter to prevent radiation of wavelength range 190-400 nm from degrading the components of the liquid.

(6) Issues

The appellant's statement of the issues in the brief is correct.

(7) Grouping of Claims

Appellant's brief includes a statement that claims 1-9 and 16-18 do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

(8) Claims Appealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

WO 98/30304	***HVID et al***	***7/1998***
US 5,073,012	***LYNAM***	***12/1991***
US 5,593,823	***WOLLOWITZ et al***	***01/1997***

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

1. Claims 1-9 and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 98/30304 in view of Lynam (US 5,073,012).

WO (304) discloses an apparatus (instant claim 1-9) and a method (instant claim 16-18) of centrifuging blood or plasma using this apparatus. The apparatus comprises container (10-fig 1) for holding blood, a turn-table for rotating the container (instant claim 1,4) (1-fig1), a halogen lamp (26-fig 1) and an IR heat source (27-fig 1) (instant claim 1,5,6,7,8), temperatures sensors (31,32-fig1) and control units (28-fig 1) (instant claim 9), the container having a piston and a cylinder, and the piston dividing the cylinder into upper and lower chambers (instant claim 2), and piston activation means for moving piston (instant claim 3) (page 6). WO(304) also discloses use of polycarbonate for the wall of the centrifuge container (lies 15-24, page 4) for transmitting only visible light and optimizing energy release from the light-emitting source.

WO (304) does not disclose an additional UV filter other than the polycarbonate wall of the centrifuge to filter the UV part of the light emitted by the halogen lamp.

Lynam (012) teaches that polycarbonate absorbs UV light below 400 nm (col 8 line 52-col 9 line 11) and the use of UV blockers, filters or screens for protection against UV (col 10: 8-35). It would be obvious to one of ordinary skill in the art at the time of invention to provide a UV filter as taught by Lynam (012) to the halogen lamp as taught by WO(304) to remove the harmful UV light and transmit only visible light for heating the sample which is an alternate but equivalent means of providing light for heating as taught by WO(304) for equivalent function.

2. Claims 1-9 and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 98/30304 in view of Wollowitz et al (US5,593,823).

WO (304) discloses an apparatus (instant claim 1-9) for centrifuging blood or plasma. The apparatus comprises container (10-fig 1) for holding blood, a turn-table for rotating the container (instant claim 1,4) (1-fig1), a halogen lamp (26-fig 1) and an IR heat source (27-fig 1) (instant claim 1,5,6,7,8), temperatures sensors (31,32-fig1) and control units (28-fig 1) (instant claim 9), the container having a piston and a cylinder, and the piston dividing the cylinder into upper and lower chambers (instant claim 2), and piston activation means for moving piston (instant claim 3) (page 6). WO(304) also discloses use of polycarbonate for the wall of the centrifuge container (lies 15-24, page 4) for transmitting only visible light and optimizing energy release from the light-emitting source.

WO (304) also teaches a method of centrifuging blood or plasma using this apparatus as in instant claims 16-18.

WO (304) does not teach having a filter placed between the wall of the container and the light-emitting source for filtering substantially radiation in the range of 190-400 nm. Wollowitz (823) teaches the use of such filters to remove radiations of specific wavelengths between a blood containing means and a heat source (see fig 6 and col 26 lines 9-16). It would be obvious to one of ordinary skill in the art at the time of invention that a filter could be placed between the wall of the container and the heat source to make sure that any unwanted radiation wavelengths are filtered from the heat-emitting source as taught by Wollowitz (823) and the radiation hitting the blood sample could be tailored to certain specific wavelengths to prevent any damage to the blood by the unwanted radiation.

(11) Response to Argument

The invention is described as an improvement over the WO'304 patent. The WO'304 patent teaches a centrifuge for separating a liquid such as blood into its components, while maintaining temperature utilizing heat sources such as an infrared heater and a halogen lamp. Centrifuge container is made of polycarbonate, and the radiation from the halogen lamp is transmitted to the blood through the polycarbonate wall of the container. Polycarbonate is a known UV filter and substantially filters radiation in the 190-400 nm range (UV range). WO'304 teaches that polycarbonate transmits only visible light, which heats the blood. Secondary ref Lynam teaches that polycarbonate absorbs UV light. Secondary ref Wollowitz'823 teaches use of filters to tailor the radiation to specific wavelengths as desired.

Appellant argues that the secondary references Lynam and Wollowitz do not rectify the deficiencies of WO '304, because there is no motivation to modify WO'304. In response: WO'304 has provided a polycarbonate container and teaches that it transmits only visible light (lines 15-24, page 4). Lynam reference is used as support to show that polycarbonate material filters the UV radiation (to which the applicant agrees). Since the primary reference teaches using a polycarbonate container (as opposed to a generic materials such as glass container or any plastic container) and heating by visible light, and Lynam ref teaches that polycarbonate filters UV light, it would be obvious to one of ordinary skill that using an additional UV filter is redundant, and just equivalent to what the WO'304 ref teaches. Wollowitz teaches deactivating pathogens in blood, which requires radiation of specific wavelengths, and provides filters to that effect. Wollowitz is used to show that it is known to one skilled in the art to provide filters for filtering/tailoring the wavelength of radiation from a radiation source to suit specific requirements. One would use a filter to make sure that any unwanted radiation wavelengths, including UV in the 190-400 nm range, are filtered from the heat-emitting source as taught by Wollowitz to prevent harmful radiation from transmitting to the blood.

Re the appellant's argument that Lynam nor Wollowitz suggest modifying WO'304: modification, ie., use of UV filter, is indirectly suggested by WO'304. Re appellant's argument that "...WO'304 suggest no need for it...", WO'304 suggests using only visible light, and by doing so implies that UV radiation is avoided (page 4 lines 15-24). Radiation of 190-400 nm is known as the UV range of radiation.

Appellant provides some experimental data alleging exceptional results by using UV filter. However the experiment does not identify and discriminate all other influential factors. The experiment includes two parameters: filtering UV light and exogenous thrombin. The % FPB column (last column of table 2) shows only three out of six pairs (50%) as showing an increase in %FPB with UV filter, which cannot be considered as exceptional results. The other three pairs show little or no effect. On the other hand, three out of the six sample pairs have exogenous thrombin, and all of them showed consistently and significantly higher %FPB. The cited references (specification-page 15) used for the experimental procedure, U.S. Patent Nos. 5,603,845 and 5,738,784, do not show halogen lamps for heating, and the '845 ref does not teach polycarbonate container (Uses PMMA container). Therefore, it is unclear from the experiment whether: (1) exposure to radiation was done during centrifugation; (2) the centrifuge container used was made of polycarbonate; and (3) 'with and without UV filter' in the experiment implied with/without *additional* UV filter (in addition to the polycarbonate container) during centrifugation.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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Patent Examiner

January 21, 2004

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